

Inside a High-Speed Factory: The Step-by-Step Lifecycle of a Two-Piece Aluminum Can

SHANDONG, SHANDONG, CHINA,

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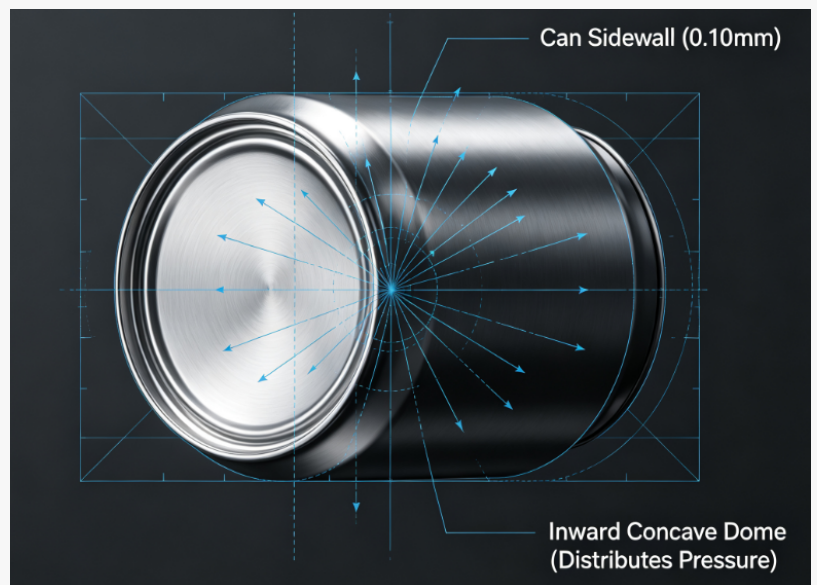
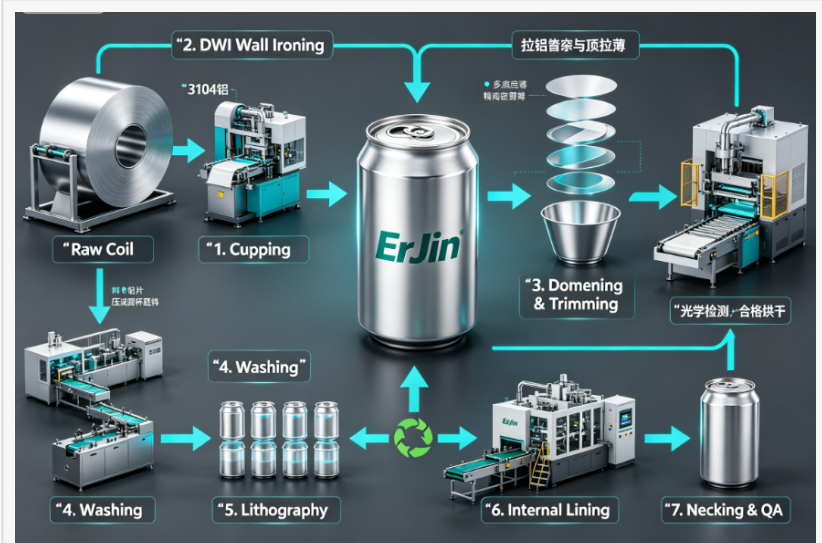
When consumers open cold craft beer, soda, or sparkling water, the lightweight aluminum container held in hand feels deceptively simple. Beneath that sleek exterior lies one of the most sophisticated, high-precision mass-manufacturing feats in modern engineering.

Automated production lines operated by [ERJIN PACK](#) reach speeds exceeding 2,000 cans per minute, with equipment tolerances kept under 0.01mm. Across its manufacturing network, a single production line converts raw metal coils into more than 1 million pristine, food-grade cans on a daily basis. For beverage brand managers and procurement heads, understanding the transformation process from raw aluminum to shelf-ready packaging serves as a key reference to optimize filling line performance and mitigate supply chain risks.

The following is an industry insider overview of the production workflow for ERJIN PACK two-piece aluminum cans.

Cupping Pressing – Blanking the Metal

The manufacturing process starts with large high-tensile master coils made of 3104 aluminum alloy. These heavy coils are unrolled and fed directly into a multi-die cupping press. Under massive synchronized mechanical pressure, the press punches circular metal discs from flat aluminum sheets and immediately forms the discs into shallow, wide-bottomed cups.



Engineering Insight: The cupping phase establishes the baseline wall uniformity of the final container. Minor thickness variation at this stage will lead to cup tearing in subsequent stretching procedures.

Skeleton scrap generated after blank punching is collected instantly and transported to thermal smelting furnaces to realize closed-loop recycling.

Deep Drawing & Ironing (DWI) – Wall Elongation

Shallow cup blanks are pneumatically conveyed to core bodymaker equipment, where the most dramatic physical transformation takes place via Drawn and Wall Ironing (DWI) technology.

A high-speed reciprocating punch pushes each cup through a series of tungsten carbide ironing rings with gradually narrowed apertures:

Redrawing: Cups are reshaped to the targeted final diameter

Wall Ironing: Aluminum material is forced through ultra-tight clearances to compress and stretch the sidewall upward

Through this procedure, sidewall thickness is reduced from 0.28mm to 0.10mm, while container height extends beyond 130mm. Such extreme lightweight design cuts shipping costs without compromising structural stability.

Bottom Domening & Precision Trimming

At the end of the bodymaker working stroke, the cylinder base is pressed against a fixed tool to form an inward concave dome structure.

Functional Explanation for Curved Bottom Design

Flat metal bottoms will bulge outward under high internal pressure from carbonated soft drinks or liquid nitrogen dosing. The inward dome design evenly distributes gas pressure across the base structure, preventing bottom buckling during transportation and temperature fluctuations.

After doming treatment, unfinished cans enter automated trimmers. Uneven metal stretching during ironing creates wavy top rims, which are trimmed by high-speed rotary knives to form smooth, uniform edges prepared for follow-up flanging processing.

Multi-Stage Washing & Tunnel Drying

High-speed forming at 2,000 units per minute produces heat and leaves heavy industrial lubricant residues. Complete surface purification is required before exterior printing and internal lining application.

Cans are inverted and transported via wide mesh conveyors through a 6-stage industrial washing system:

Acid Wash & Ultrasonic Degreasing: Remove soluble lubricants and loose aluminum particles

Deionized Water Flushes: Eliminate residual chemical substances

High-Temperature Tunnel Drying: Remove all moisture to obtain chemically neutral, clean alloy surfaces suitable for decoration processing

High-Speed Lithography & Custom Surface Finishes

Raw cylindrical cans gain brand visual attributes in this phase. Clean cans pass through 6-to-8 color rotary dry-offset printing presses; each can rotates against a central rubber blanket for instantaneous transfer of high-resolution intricate graphics.

ERJIN PACK printing systems support specialized tactile and visual effects to boost retail shelf visibility of packaged products:

Glossy Finish: High-reflectivity clearcoats for enhanced visual contrast

Matte Finish: Glare-free tactile surfaces matching modern and organic brand positioning

White Base Coatings: Pre-coatings that preserve original ink hues on bare aluminum surfaces

Tactile Inks: Raised texture coatings delivering unique tactile experience for consumers

Professional technical control guarantees stable color difference management, smooth gradient presentation and streak-free solid color rendering even during large-batch mass production.

Internal Food-Grade Barrier Application

An internal protective barrier is essential for every can to preserve beverage flavor and avoid direct contact between acidic drinks and raw aluminum alloy.

Automated spray equipment injects micron-level mist of food-grade lining material into rotating can bodies.

Corrosion Resistance: Isolate craft beers, wine, carbonated soft drinks and juices from metal substrates to avoid chemical reaction

Organoleptic Protection: Prevent metallic off-flavors and support a 12-to-24 month shelf life for packaged beverages

Lined cans go through high-temperature curing ovens to solidify and seal polymer coatings.

ERJIN PACK provides industry-standard epoxy liners and advanced BPA-non-intent (BPANI) liners to meet global regulatory requirements across North American and European markets.

Die Necking & Flanging

The top opening diameter of printed cans remains approximately 60mm, identical to the main body diameter. Neck narrowing treatment is implemented to lower lid material costs and improve overall structural strength.

Cans are processed by continuous die necking equipment, where 20 to 30 independent dies gradually compress the top opening to 52mm or 54mm (corresponding to 202 or 200 neck specifications). The top edge is then outward flanged to match double-seaming procedures at downstream beverage filling plants.

High-Definition Inspection & Automated Palletizing

All product batches undergo a comprehensive quality assurance matrix before leaving ERJIN PACK production facilities:

Camera Optical Scan □ Dome Pressure Test □ Pin-Hole & Light Leak Check □ Palletizing & Export Wrap

Optical Camera Scanning: 100% full inspection via high-resolution cameras to identify printing defects, neck dents and internal lining defects

Light-Leak & Pin-Hole Testing: High-sensitivity light sensors detect micron-level microfissures

Dimensional & Dome Pressure Testing: Batch sampling verifies sidewall thickness, flange dimension and pressure resistance performance

Cans passing all inspections are automatically stacked on export-qualified wooden or plastic pallets, strapped, shrink-wrapped and shipped to cooperating filling facilities worldwide.

Industry Cooperation Overview

Covering the full supply chain from raw alloy coil processing to global logistics delivery, ERJIN PACK integrates large-scale manufacturing capacity with strict export quality management. With more than 20 years of international trade experience and cooperative relationships with over 300 brands spanning Europe, the Middle East and Southeast Asia, the enterprise provides direct

wholesale [aluminum can](#) products compatible with mainstream high-speed filling equipment. Product portfolios cover Standard, Sleek and Slim can profiles. Professional technical support helps maintain stable operation of clients' filling lines and strengthen product visual competitiveness in retail scenarios.

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